

CLAIMS

1. A composition comprising one or more nucleotide fragments, wherein the one or more nucleotide fragments
5 taken together comprise at least (1) an nucleotide sequence (a) encoding human soluble CD4, (2) an nucleotide sequence (b) comprising at least nucleotide sequences encoding the heavy chain and the light chain of immunoglobulin IgG3, said IgG3 being directed against at
10 least one of the peptide selected from the group consisting of SEQ ID NO:2 to SEQ ID NO:26, and (3) the nucleic elements required for replicating each said nucleotide sequences (a) and (b), in a host cell, when said host cell divides and for expressing under control
15 each of said nucleotide sequences (a) and (b) in said host cell.

2. The composition of claim 1, comprising an expression cassette comprising at least nucleotide sequence (a) and nucleotide sequence (b) and the nucleic
20 elements required for expressing them under control in said host cell.

3. The composition of claim 1, comprising at least a first expression cassette comprising nucleotide sequence (a), and the nucleic elements required for
25 expressing it under control in said host cell, and

a second expression cassette comprising nucleotide sequence (b), and the nucleic elements required for expressing it under control in said host cell.

4. The composition of claim 1, comprising a vector
30 comprising at least nucleotide sequence (a) and nucleotide sequence (b), and the nucleic elements required for expressing them under control in said host cell.

5. The composition of claim 1, comprising at least a first recombinant vector comprising nucleotide
35 sequence (a), and the nucleic elements required for expressing it under control in said host cell, and

a second recombinant vector comprising nucleotide sequence (b), and the nucleic elements required for expressing it under control in said host cell.

6. The composition of claim 1, wherein the
5 nucleotide sequence (a) encodes sCD4 multimer.

7. The composition of claim 1, wherein the nucleotide sequence (a) further comprises a nucleotide sequence encoding a constant region of an immunoglobulin.

8. The composition of claim 7, wherein the
10 constant region is a constant region of 2F5 monoclonal antibody.

9. The composition of claim 1, wherein nucleotide sequence (a) further comprises nucleotide sequences encoding the heavy chain and the light chain of 2F5
15 monoclonal antibody.

10. The composition of claim 4, wherein said vector is selected among the group consisting of adenoviral vectors, lentiviral vectors, second-generation adenoviral vectors, retroviral vectors, chimeric viral
20 vectors and synthetic vectors.

11. The composition of claim 5, wherein at least one of said first and said second recombinant vectors is selected among the group consisting of adenoviral vectors, lentiviral vectors, second-generation adenoviral vectors, retroviral vectors, chimeric viral vectors and synthetic
25 vectors.

12. The composition of claim 11, wherein at least one of said first and said second recombinant vectors is of murine Moloney leukemia retrovirus type.

30 13. The composition of claim 1, wherein said nucleic elements comprise a promoter.

14. The composition of claim 13, wherein the promoter is the promoter of mouse phosphoglycerate kinase type 1.

35 15. A host cell which comprises at least an expression cassette selected among the group consisting of

an expression cassette of claim 2, the first expression cassette of claim 3 and the second expression cassette of claim 3.

16. A host cell which comprises at least a vector selected among the group consisting of a vector of claim 4, the first vector of claim 3 and the second vector of claim 3.

17. The host cell of claim 15, wherein said host cell is selected among the group consisting of fibroblasts, lymphocytes and stem cells.

18. The host cell of claim 16, wherein said host cell is selected among the group consisting of fibroblasts, lymphocytes and stem cells.

19. A tissue of genetically modified cells comprising a plurality of host cells of claim 17.

20. A tissue of genetically modified cells comprising a plurality of host cells of claim 18.

21. An implant of genetically modified cells comprising a plurality of host cells of claim 17.

22. An implant of genetically modified cells comprising a plurality of host cells of claim 18.

23. The implant of claim 21, wherein said host cells are selected among the group consisting of fibroblasts, lymphocytes, stem cells.

24. The implant of claim 22, wherein said host cells are selected among the group consisting of fibroblasts, lymphocytes, stem cells.

25. A method for treating an infectious disease, wherein a composition of claim 1, is administered by gene therapy, to a mammal or a patient.

26. The method of claim 25, wherein said infectious disease is caused by HIV-1 retrovirus.

27. A method for treating infectious disease, wherein a composition of claim 2, is administered to a mammal or a patient.

28. The method of claim 27, wherein said infectious disease is caused by HIV-1 retrovirus.

29. A method for treating infectious disease, wherein at least (1) a first expression cassette
 5 comprising a nucleotide sequence (a) encoding human soluble CD4 and nucleic elements required for replicating nucleotide sequence (a) in a host cell, when said host cell divides, and for expressing under control said nucleotide sequence (a) in said host cell, (2) a second
 10 expression cassette comprising a nucleotide sequence (b) comprising at least nucleotide sequences encoding the heavy chain and the light chain of immunoglobulin IgG3, said IgG3 being directed against at least one of the peptide selected from the group consisting of SEQ ID NO:2
 15 to SEQ ID NO:26, and nucleic elements required for replicating nucleotide sequence (b), when said host cell divides, and for expressing under control said nucleotide sequence (b) in said host cell,
 are administered by gene therapy to a mammal or a
 20 patient.

30. The method of claim 29, wherein said first expression cassette and said second expression cassette are administered, concomitantly or separately.

31. The method of claim 29, wherein said
 25 infectious disease is caused by HIV-1 retrovirus.

32. A method for treating infectious disease, wherein at least (1) a first recombinant vector comprising a nucleotide sequence (a) encoding human soluble CD4 and nucleic elements required for replicating nucleotide
 30 sequence (a) in a host cell, when said host cell divides, and for expressing under control said nucleotide sequence (a) in said host cell, (2) a second recombinant vector comprising a nucleotide sequence (b) comprising at least nucleotide sequences encoding the heavy chain and the
 35 light chain of immunoglobulin IgG3, said IgG3 being directed against at least one of the peptide selected from

the group consisting of SEQ ID NO:2 to SEQ ID NO:26, and nucleic elements required for replicating nucleotide sequence (b), when said host cell divides, and for expressing under control said nucleotide sequence (b) in
5 said host cell,

are administered by gene therapy to a mammal or a patient.

33. The method of claim 32, wherein said first recombinant vector and said second recombinant vector are
10 administered, concomitantly or separately.

34. The method of claim 32, wherein said infectious disease is caused by HIV-1 retrovirus.

35. A method for treating infectious disease, by gene therapy, wherein at a least one host cell of claim 15
15 is administered by gene therapy to a mammal or a patient.

36. The method of claim 36, wherein said infectious disease is caused by HIV-1 retrovirus.

37. A method for treating infectious disease, wherein an implant of claim 21 is administered by gene
20 therapy, to a mammal or a patient.

38. The method of claim 37, wherein said infectious disease is caused by HIV-1 retrovirus.